

Vitamin B and Memory Loss

Recent research from Oxford University has shown that taking high doses of vitamins B6, B12 and folate can significantly reduce the rate of declining memory in the elderly. This supports previous work from London which suggested folate deficiency was associated with depression and dementia.

Vitamin B helps to keep homocysteine, an amino acid, at healthy levels. Increased levels of homocysteine are known to be associated with a higher risk of Alzheimer's disease and increased rates of brain atrophy.

Poor diet is the usual reason for low levels of vitamin B. The elderly are at particular risk because their diet is limited. More rarely, some medical conditions or surgery to the bowel can result in poor absorption. Gender, smoking, body mass index and alcohol intake do not appear to be significant independent factors, though of course the cost of smoking and alcohol to those on a limited income may reduce the amount spent on healthy food. Vitamin B12 absorption from food can be affected by drugs such as metformin and proton pump inhibitors (omeprazole, lansoprazole).

Folic acid and B6 are naturally found in most beans and green vegetables, lentils and asparagus. B12 comes from meat and fish. They can also be obtained from vitamin supplements or fortified foods. The recommended daily intake for B6 is 1.2-1.4mg/day; for B12, 3mcg/day; for folate, 300mcg/day.

The Oxford research used a combination pill of high doses of all 3 (B6 3mg, B12 0.5mg, folate 0.8mg) which is only available in Sweden. Very accurate and sensitive MRI scans of the brain were taken at the beginning of the trial and two years later. Homocysteine levels were also taken at the beginning and the end. The elderly subjects were divided into two groups, half of whom took the combination tablet, the other half were given a placebo.

The rate of brain atrophy was over 25% less in the group receiving the vitamin B supplements compared to those taking the placebo. Homocysteine levels in the treatment group reduced by 22.5% but increased by nearly 8% in the placebo group. The treatment effect was found to be greatest in the patients who had the highest homocysteine levels at the beginning of the trial, with over 50% reduction in brain atrophy.

This trial did not use any questionnaires to check memory or cognitive function, but other trials using the same vitamins have shown improvement in cognition and also mild (but not moderate) Alzheimer's disease. The authors suggest high doses of vitamin B6, B12 and folate might slow the development of Alzheimer's in those patients showing evidence of cognitive impairment. It does not claim that taking these vitamins from a younger age will necessarily reduce the risks of cognitive decline or Alzheimer's in the future.

Nevertheless, measuring homocysteine levels in middle age, or possibly earlier in those who have relevant medical conditions or a family history of Alzheimer's, would seem a sensible first step. Lifestyle advice, with particular reference to diet and exercise, could be given and, where necessary, supplementation of B6, B12 and folate given.

The tablet used in the Oxford trial is not available in the UK, but a pre-packed combination is available from the Wellman Clinic: Cyanocobalamin (B12) 50mcg, 1 daily; Pyridoxine (B6) 10mg, 1 daily; Folic acid 400mcg, 2 daily.

Reference:

Homocysteine-Lowering by B Vitamins Slows the Rate of Accelerated Brain Atrophy in Mild Cognitive Impairment: A Randomised Controlled Trial, [Smith AD](#), [Smith SM](#), [de Jager CA](#), [Whitbread P](#), [Johnston C](#), [Agacinski G](#), [Oulhaj A](#), [Bradley KM](#), [Jacoby R](#), [Refsum H](#). Oxford Project to Investigate Memory and Ageing, University of Oxford, Oxford, United Kingdom, September 2010.